

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims, and listings of claims in the application:

Claim 1 (currently amended): A method for calibrating robotic picker mechanisms in automated storage library systems, comprising:

detecting a calibration mark associated with a storage library with at least one sensor, wherein the at least one sensor detects the calibration mark from a first position and a second position, the first position and the second position separated by an offset distance, wherein the calibration mark comprises an optically detectable indicium;

determining a relative shift in the detected calibration mark detected from the first position and the second position; and

determining a distance between the calibration mark and a reference position based on the shift in the detected calibration mark, the offset position, and a focal length associated with the at least one sensor used to detect the calibration mark.

Claim 2 (original): The method of claim 1, wherein the reference position is associated with an average position of the first position and the second position.

Claim 3 (original): The method of claim 1, wherein the reference position is associated with at least one of the first position and the second position.

Claim 4 (original): The method of claim 1, wherein the reference position is associated with a robotic picker mechanism.

Claim 5 (original): The method of claim 1, wherein the at least one sensor includes a first sensor and a second sensor.

Claim 6 (original): The method of claim 1, wherein the at least one sensor includes a first sensor and a second sensor separated by the offset distance.

Claim 7 (original): The method of claim 1, wherein the at least one sensor is associated with a robotic picker mechanism.

Claim 8 (original): The method of claim 1, wherein the at least one sensor is attached to a robotic picker mechanism.

Claim 9 (original): The method of claim 1, wherein the at least one sensor includes an optical sensor.

Claim 10 (original): The method of claim 1, wherein the sensor includes a CMOS imaging device.

Claim 11 (original): The method of claim 1, wherein the first position and the second position are in a plane substantially orthogonal to a direction between the at least one sensor and the calibration mark.

Claim 12 (currently amended): A robotic mechanism for transporting storage devices in a storage library, comprising:

a gripper assembly for handling storage devices;

a sensor associated with the gripper assembly; and

at least one controller, wherein the at least one controller and sensor are adapted to

detect a calibration mark from a first position, wherein the calibration mark comprises an optically detectable indicium,

detect the calibration mark from a second position,

determine a shift in the detected calibration mark from the first position and the second position relative to the sensor, and

determine a distance between a reference point and the calibration mark based on the shift in the calibration mark, the distance between the first position and the second position, and a focal length associated with the sensor.

Claim 13 (original): The device of claim 12, wherein the reference position is associated with an average position of the first position and the second position.

Claim 14 (original): The device of claim 12, wherein the reference position is associated with at least one of the first position and the second position.

Claim 15 (original): The device of claim 12, wherein the reference position is associated with the gripper assembly.

Claim 16 (original): The device of claim 12, wherein the calibration mark is associated with at least one of a storage bin and a drive bezel.

Claim 17 (original): The device of claim 12, further including a light source associated with the gripper assembly for directing light to the approximate position of the calibration mark.

Claim 18 (original): The device of claim 12, wherein the sensor is coupled to a robotic picker mechanism.

Claim 19 (original): The device of claim 12, wherein the sensor includes an area sensor device.

Claim 20 (original): The device of claim 12, wherein the sensor includes a CMOS imaging device.

Claim 21 (original): The device of claim 12, wherein the sensor includes a CCD imaging device.

Claim 22 (original): The device of claim 12, wherein the calibration mark includes at least one of a rectangular shaped and cross-hair indicium.

Claim 23 (currently amended): A storage library system, comprising:
a housing adapted to include storage slots and one or more media drives; and
a gripper assembly for handling storage devices in a storage library system, having:
a sensor associated with the gripper assembly; and
a controller, wherein the controller and the sensor are configured to:
detect a calibration mark from a first position, wherein the calibration mark comprises an optically detectable indicium,

detect a calibration mark from a second position,
determine a shift in the detected calibration mark from the first position and the second position relative to the sensor, and
determine a distance between the gripper assembly and the calibration mark based on the shift in the calibration mark, the distance between the first position and the second position, and a focal length associated with the sensor.

Claim 24 (original): The system of claim 23, wherein the calibration mark is associated with at least one of a storage bin and a drive bezel.

Claim 25 (original): The system of claim 23, further including a light source associated with the gripper assembly for directing light to the approximate position of the calibration mark.

Claim 26 (original): The system of claim 23, wherein the sensor includes an area sensor device.

Claim 27 (original): The system of claim 23, wherein the sensor includes a CMOS imaging device.

Claim 28 (original): The system of claim 23, wherein the sensor includes a CCD imaging device.

Claim 29 (cancelled)